1,051,347

PATENT SPECIFICATION

DRAWINGS ATTACHED

1,051,347

Date of filing Complete Specification: Nov. 12, 1965.

Application Date: Aug 24, 1964. *No. 34636/64.*

Complete Specification Published: Dec. 14, 1966.

Index at acceptance:—A1 M1

Int. Cl.:—A 01 j 7/00

COMPLETE SPECIFICATION

Sterilisation Devices

I, DAVID ALEXANDER BOWIE, a British Subject, of Cotswold, Holmemoor Drive, Sonning, Berkshire, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to devices for sterilising by means of steam.

Modern standards of hygiene require that any apparatus used in the production and distribution of food-stuffs is frequently sterilised and this has presented a particular problem in dairies where it is essential that frequent sterilisation of the milking machines is carried out.

Hitherto, milking machines have been sterilised by chemical methods and since these machines consist of separated assemblies interconnected by lengths of flexible tubing the sterilisation procedures have proved most troublesome.

It is the object of the present invention to provide a means which will enable substantially the entire system of a milking machine to be thoroughly sterilised by steam from a convenient central location without completely disassembling the machine.

In accordance with the invention a sterilising device comprises a closed container for water, a heating element for raising steam from water within the container, and an outlet duct from the container for the steam terminating at a multi-way valve whereby the steam may be selectively directed through any one of two or more outlet connectors adapted to direct the steam into apparatus to be sterilised.

In a preferred construction the water within the container is heated by an electric immersion element and the outlet connectors from the selector valve are suitably adapted for connection to the stall tubes of a milking machine.

A preferred embodiment of the invention by way of example will now be more particularly described with reference to the accompanying drawings in which:—

Fig. 1 shows a perspective view of a sterilising device in accordance with the invention, and

Fig. 2 illustrates the application of the device to a milking machine.

Referring to Fig. 1, the steriliser comprises a closed container 1 preferably of aluminium or copper or other non-rusting metal mounted on a supporting tray 2 which is adapted to be fixed to a wall or other rigid support. An electric immersion heater element similar to that which is employed in domestic kettles and of conventional construction is mounted within the container in the lower part thereof and terminates in a plug connection 3 to receive a lead 4 from a suitable power supply.

The top 5 of the container is provided with a tubular steam outlet 6. At the end of the outlet 6, a three way valve 7 carries outlet connectors 8 which are conically shaped and circumferentially ribbed to receive the ends of the stall tubes of a milking machine, the fit between the stall tubes and the connectors being sufficiently close to be steam tight at low pressures. The control handle 9 of the valve 7 may be set to allow steam to issue through any one of the outlet connectors 8 at a time.

Water is supplied to the container by a hose connection to any one of the outlet connectors and to prevent over-filling, a water level and air outlet cock 10 is mounted on the side of the container. When water issues from this cock filling is stopped and the cock is closed. Alternatively, the container may be filled by providing a sealable filler aperture in the lid or by making the top removable.

The steriliser is employed to sterilise a milking machine in the manner shown in Fig. 2. As shown, the milking machine consists essentially of three teat cup clusters 20 connected by milk lines 21 to buckets 22. In the drawing, the milking machine is shown after preliminary washing with the buckets inverted for drainage

[*Price 4s. 6d.*]

and supported by a rail 23. The stall tubes 24, after disconnection from the pulsator (not shown) of the machine, are pushed over the ends of the outlet connectors 8 of the device, the container of which has been previously filled with water. The immersion element in the container is switched on to cause the water to boil with the valve set to allow of admission of steam to a first one of the three stall tubes. Steaming is allowed to continue until steam has issued from the teat cups of the cluster 20 in connection with the first stall tube for about one minute whereupon the valve operating handle is moved to cut off the supply to the first stall tube and admit the steam to the second stall tube. Subsequently, the third store tube is connected by further operation of the valve so that the entire machine with the exception of the pulsator is sterilised by passage therethrough of steam generated by the device.

It will be appreciated that, in order to save time, it is not necessary that all the stall tubes should be connected before steaming commences. Two of the tubes may be prepared and connected while steam is supplied to the first tube.

It should be further understood that the invention is not limited to three outlet connectors nor is it necessary that an outlet be provided for every stall tube required for connection. If the number of stall tubes in a milking machine is more than the number of connectors, a fresh connection may be made to the first outlet connector while the second or third connector is being employed.

WHAT I CLAIM IS:—

1. A sterilising device comprising a container, heating means to generate steam from water within the container, and an outlet duct from the container terminating in a multi-way valve having at least two outlet connectors, which can be individually selected by operation of the valve for the egress of steam from the container.

2. A device according to claim 1 wherein the heating means is an electrical heating element.

3. A device according to claim 1 or 2 in which the container is provided with a vent cock to prevent the container being filled with water above a predetermined level.

4. A device according to any of the preceding claims wherein the outlet connectors are adapted for insertion in a steam-tight manner within the ends of flexible resilient tubes.

5. A sterilising device constructed and arranged substantially as hereinbefore described and shown in the accompanying drawings.

6. A method of sterilising a milking machine comprising the steps of disconnecting stall tubes from the pulsator of the machine and connecting each of the tubes to an individual one of the outlet connectors of a device according to any of the preceding claims, and generating steam within the device to cause the steam to issue from each outlet connector into the stall tube connected thereto.

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Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press (Leamington) Ltd.—1966. Published by The Patent Office, 25 Southampton Buildings, London, W.C.2, from which copies may be obtained.

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1 SHEET *This drawing is a reproduction of the Original on a reduced scale*

Fig.1.

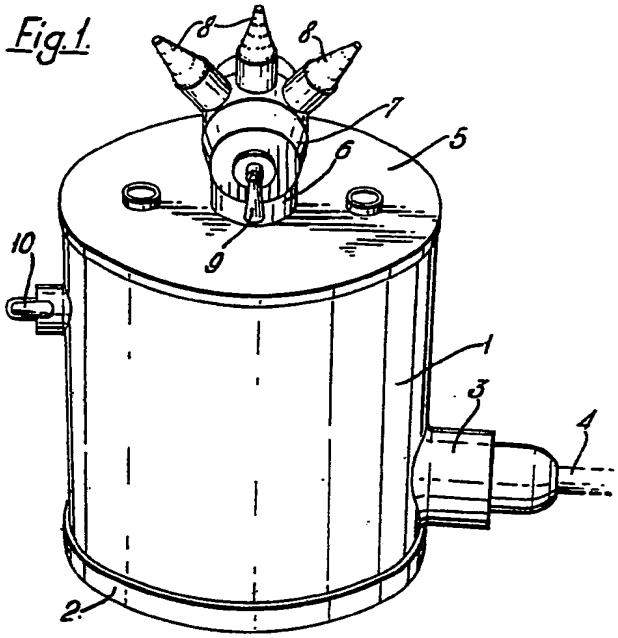

Fig.2.